

# *Evaluation of Chromium Doped Cadmium Chalcogenides as Mid Infrared Laser Materials*

*Uwe Hömmerich, Hampton University, DMR-9733062*

## **Research:**

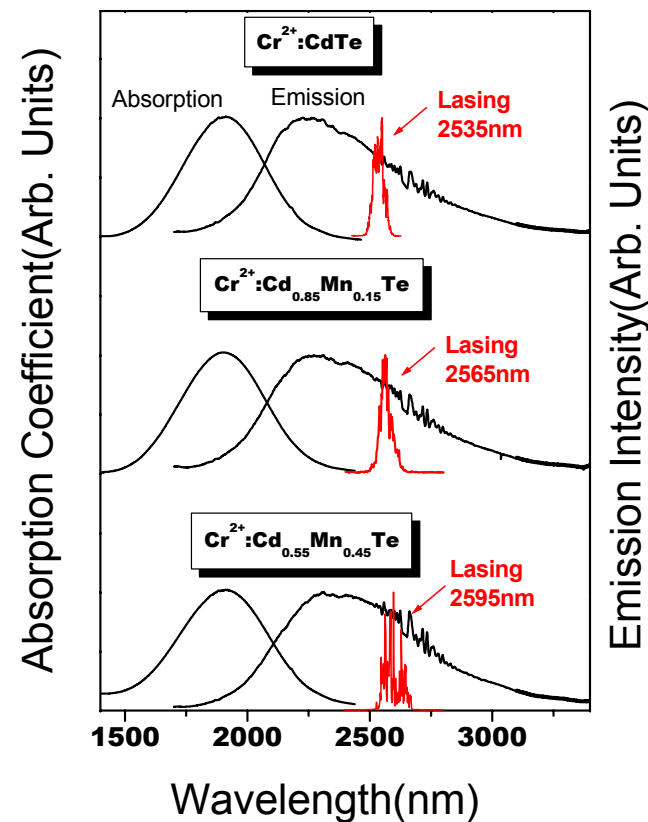
The development of mid-infrared (MIR) lasers is of significant current interest for applications in fundamental science, medicine, and optical remote sensing of biological and chemical agents.

The research carried out under this award lead to the development of a new class of MIR laser materials based on  $\text{Cr}^{2+}$  doped II-VI semiconductors.

Through careful materials optimization and engineering, MIR lasing was demonstrated for the first time from Cr: CdTe and Cr: CdMnTe.

This work was carried out in close collaboration with researchers at Brimrose Corporation of America.

The research results from this award have been communicated in 4 refereed journal publications.



*“Compositionally tuned”* infrared laser materials based on  $\text{Cr}^{2+}$  doped Cadmium Chalcogenides.

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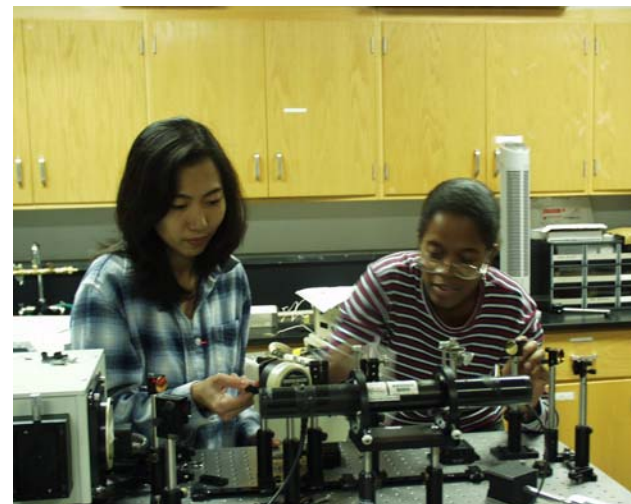
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## **Education:**

*During the time period of this award 13 students from underrepresented minority groups participated in research.*

Highlights of educational activities:

- Althea Bluiett received a Ph.D. degree in Physics (2003)
- Matthew Turner received a M.S. degree in Physics (1998)
- 7 undergraduate students carried out research projects
- 4 high school students carried out research projects.
- 4 students participated in an Industrial internship program with Brimrose Corporation of America.
- 13 students contributed to 23 conferences presentations and 4 refereed journal papers.
- The P.I. developed a new course in Optical Spectroscopy.



EiEi Nyein (left) and Althea Bluiett (right) aligning the mirrors of a  $\text{Cr}^{2+}:\text{CdTe}$  laser. Ms. Bluiett graduated in 2003 with a Ph.D. degree in Physics. She is currently a NRC Postdoctoral Fellow at the Navy Research Laboratory in Washington, DC.